

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): An examination assistant device ~~used~~ for use in examination in which examining an examination objective portion of a quartz product of a semiconductor processing apparatus by holding a process solution including comprising an etching solution is held in contact with ~~[[an]]~~ the examination objective portion ~~of a quartz pole member of a semiconductor processing apparatus, and then analyzing the process solution is analyzed~~ to identify a metal impurity contained in the examination objective portion, the quartz product being a pole member having a plurality of grooves for supporting target substrates to be processed in the semiconductor processing apparatus, and wherein the pole member includes including a pair of concave portions disposed one on either side of the examination objective portion, the device comprising:

a pair of end plates configured to engage with the pair of concave portions;

a frame connecting the pair of end plates; and

a solution receiver disposed between the pair of end plates, the solution receiver having and having dimensions for storing the process solution in a predetermined amount to ~~[[and]]~~ hold the process solution in contact with the examination objective portion to etch the examination objective portion.

Claim 2 (Original): The device according to claim 1, further comprising a pair of latches to attach the device to the pole member, such that the pole member is pinched between the pair of latches and the pair of end plates.

Claim 3 (Original): The device according to claim 2, wherein each of the latches is pivotally supported on the frame and rotatable between a position to attach the device to the pole member and a position to detach the device from the pole member.

Claim 4 (Original): The device according to claim 1, wherein the device is attached to the pole member by close-contact engagement of the pair of end plates with the pair of concave portions.

Claim 5 (Currently Amended): The device according to claim 1, wherein ~~the pole member comprises a plurality of grooves for supporting target substrates to be processed in the semiconductor processing apparatus, and~~ the pair of concave portions are two of the grooves.

Claim 6 (Original): The device according to claim 5, further comprising, in addition to the pair of end plates, a plurality of engaging plates to be inserted into the grooves, wherein the device is attached to the pole member by close-contact engagement of the pair of end plates and the engaging plates with the grooves.

Claim 7 (Original): The device according to claim 1, wherein the solution receiver is defined by a space in a container formed by the pair of end plates and the frame.

Claim 8 (Original): The device according to claim 7, wherein the pair of end plates and the frame consist essentially of fluoroplastic.

Claim 9 (Currently Amended): An examination assistant device ~~used~~ for use in examining an examination objective portion of a quartz product of a semiconductor processing apparatus by holding ~~examination in which~~ a process solution including ~~comprising~~ an etching solution is ~~held~~ in contact with ~~[[an]]~~ the examination objective portion ~~of a quartz reaction tube of a semiconductor processing apparatus,~~ and then analyzing the process solution ~~is analyzed~~ to identify a metal impurity contained in the examination objective portion, ~~wherein the quartz product being a quartz reaction tube includes~~ including a curved surface on which the examination objective portion is positioned, the device comprising:

an annular member having a bottom surface to come into close contact with the curved surface, and configured to cooperate with the curved surface to form a solution receiver that surrounds the examination objective portion; and

~~for storing the process solution, the annular member comprising~~ an elastic seal member disposed on the bottom surface of the annular member, the annular member having dimensions for forming the solution receiver to store the process solution in a predetermined amount to hold the process solution in contact with the examination objective portion and to etch the examination objective portion.

Claim 10 (Original): The device according to claim 9, wherein the annular member consists essentially of fluoroplastic.

Claim 11 (Canceled).

Claim 12 (Original): The device according to claim 9, wherein the annular member further comprising a magnet embedded therein.

Claim 13 (Currently Amended): An examination method for examining using an examination assistant device, for identifying a metal impurity contained in an examination objective portion of a quartz product of a semiconductor processing apparatus;
—— ~~wherein~~ by use of a process solution including an etching solution, the quartz product ~~being~~ being a pole member having comprising a plurality of grooves for supporting target substrates to be processed in the semiconductor processing apparatus, and the pole member ~~includes~~ including a pair of concave portions disposed one on either side of the examination objective portion, ~~[[and]]~~ the method comprising:

~~wherein the preparing an~~ examination assistant device that comprises a pair of end plates configured to engage with the pair of concave portions, a frame connecting the pair of end plates, and a solution receiver disposed between the pair of end plates, such that the solution receiver has and having dimensions for storing to store the process solution in a certain amount to ~~[[and]]~~ hold the process solution in contact with the examination objective portion and to etch the examination objective portion,

~~the method comprising:~~

placing the examination assistant device on the pole member such that the pair of end plates engages ~~engage~~ with the pair of concave portions and the examination objective portion is positioned within the solution receiver;

causing ~~[[a]]~~ the process solution ~~comprising an etching solution~~ within the solution receiver to be in contact with the examination objective portion for a predetermined time, thereby performing etching on the examination objective portion; and

operating an analyzer to analyze the process solution used for the etching, ~~thereby identifying to identify~~ [[the]] a metal impurity contained in the examination objective portion.

Claim 14 (Currently Amended): The method according to claim 13, wherein said identifying the metal impurity contained in the examination objective portion comprises:

- evaporating and drying the process solution used for the etching to precipitate quartz and the metal impurity, ~~thereby forming~~ to form a precipitated product;
- dissolving the precipitated product into a secondary process solution comprising an etching solution and set to be in an amount smaller than that of the process solution; and
- operating the analyzer to analyze the secondary process solution containing the precipitated product dissolved therein.

Claim 15 (Original): The method according to claim 13, wherein said identifying the metal impurity contained in the examination objective portion comprises:

- condensing the process solution used for the etching to form a condensed solution;
- and
- operating the analyzer to analyze the condensed solution.

Claim 16 (Original): The method according to claim 13, wherein said identifying the metal impurity contained in the examination objective portion is performed by an inductively coupled plasma mass analyzer.

Claim 17 (Original): The method according to claim 13, wherein the predetermined time for performing the etching on the examination objective portion is determined to correspond to a target etching depth, with reference to a relationship prepared in advance between process time and quartz etching amount in etching quartz by the etching solution.

Claim 18 (Original): The method according to claim 13, wherein said identifying the metal impurity contained in the examination objective portion comprises:

analyzing the process solution used for the etching to detect an amount of quartz and an amount of the metal impurity; and

using the amount of quartz and the amount of the metal impurity to estimate a concentration of the metal impurity in the examination objective portion.

Claims 19-20 (Canceled).

Claim 21 (Currently Amended): An examination method ~~using an examination assistant device, for identifying a metal impurity contained in~~ for examining an examination objective portion of a quartz product of a semiconductor processing apparatus by use of a process solution including an etching solution,

~~wherein the quartz product [[is]] being a quartz reaction tube of [[a]] the semiconductor processing apparatus, and the quartz reaction tube includes~~ including a curved surface on which the examination objective portion is positioned, the method comprising: ;
and

~~wherein the examination assistant device comprises an annular member having a bottom surface to come into close contact the curved surface, and configured to cooperate with the curved surface to form a solution receiver that surrounds the examination objective portion for storing the process solution, the annular member comprising an elastic seal member disposed on the bottom surface,~~
~~the method comprising:~~

placing the examination assistant device on the curved surface of the quartz reaction tube and forming a solution receiver such that the examination objective portion is positioned within the solution receiver;

causing ~~[[a]]~~ the process solution ~~comprising an etching solution~~ within the solution receiver to be in contact with the examination objective portion for a predetermined time; ~~thereby to perform~~ performing etching on the examination objective portion; and

operating an analyzer to analyze the process solution used for the etching, ~~thereby to~~ identify ~~identifying~~ ~~[[the]]~~ a metal impurity contained in the examination objective portion.

Claim 22 (Currently Amended): The method according to claim 21, wherein said identifying the metal impurity contained in the examination objective portion comprises:

evaporating and drying the process solution used for the etching to precipitate quartz and the metal impurity; ~~thereby forming~~ to form a precipitated product;

dissolving the precipitated product into a secondary process solution comprising an etching solution and set to be in an amount smaller than that of the process solution; and

operating the analyzer to analyze the secondary process solution containing the precipitated product dissolved therein.

Claim 23 (Original): The method according to claim 21, wherein said identifying the metal impurity contained in the examination objective portion comprises:

condensing the process solution used for the etching to form a condensed solution;
and

operating the analyzer to analyze the condensed solution.